

**040-F EVALUATION OF VRI (VIBRATION RESPONSE IMAGING) UTILITY IN THE PREDICTION OF POSTOPERATIVE FUNCTION AFTER LUNG RESECTION SURGERY**

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**Background:** Preoperative radionuclide studies of regional perfusion together with lung function tests are established diagnostic methods for aiding in predicting pulmonary function after resection for lung cancer. VRIxp is a device that records lung sounds and calculates quantitative regional acoustic energy contributed by each lung area. We analyzed the use of VRIxp in calculations of the predicted post-operative (ppo) lung function results by comparing VRIxp measurements to actual results at 1 months postoperative. Additionally, the results achieved by using VRIxp were compared with results achieved by perfusion scan.

**Methods:** Fifty-five candidates (10F, age=61yrs±10yrs) for lung resection surgery (lung cancer) were referred for preoperative evaluation and were enrolled in the study. All patients had lung function test before the surgery (baseline) and at follow-up. All the patients were recorded with the VRIxp device (Deep Breeze, Or-Akiva, Israel) at baseline; 20 patients underwent perfusion at baseline. Ppo FEV1 values were calculated by subtracting the percent functional uptake or percent acoustic energy of the lung to be resected from the total.

**Results:** The ppo values based on VRI (15 pneumonectomy and 40 lobectomy procedures) were 64.61%±16.44% and 1.85±0.67 L for FEV1(%) and FEV1(L), respectively. The actual post-operative results were 64.98%±15.84% and 1.83±0.63L. High correlations were found between the predictions based on VRI and the actual results: 0.920794 and 0.935791 for FEV1(%) and FEV1(L), respectively. In the 20 patients with perfusion at baseline, average ppo values for FEV1(%) were 40.07%±10.61% and 39.94%±8.97%, based on VRI and perfusion, respectively. The correlation between the predictions based on VRI and V/Q scan was 0.805068 for FEV1(%)

**Conclusions:** Predictions based on lung function testing and VRIxp data demonstrated high accuracy in comparison to the actual postoperative results and high agreement with the perfusion estimations. Further studies may establish that VRI can be used for estimating ppo when perfusion testing is not available.